

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-4 and 7 are presently pending in this application.

In the outstanding Office Action, Claims 1-4 and 7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ichikawa et al. (U.S. Patent 5,595,581) in view of Ohno et al. (U.S. Patent 6,669,751).

Briefly, Claim 1 is directed to a honeycomb filter for purifying exhaust gases and recites “a columnar body comprising a plurality of porous ceramic members, each of said porous ceramic members having a plurality of through holes extending in parallel with one another in a length direction of said columnar body and a wall portion interposed between said through holes, said wall portion being configured to collect particles in exhaust gases; and a plurality of plugs filling ones of said through holes at one end of said columnar body and other ones of said through holes at the other end of said columnar body, wherein said columnar body has a porosity which is in a range from 20 to 80%, said plugs have a porosity which is 90% or less, and said porosity of said plugs is set to 0.15 to 4.0 times of said porosity of said columnar body.”

By providing such a columnar body, a thermal stress exerted during use is dispersed among the porous ceramic members, and furthermore, the difference between the thermal expansion coefficients of the columnar body and the plugs is set smaller, making less susceptible to gap formation between the columnar body and the plugs. As a result, the columnar body is significantly less susceptible to cracking caused by the thermal expansion and thermal stress due to the repetitions of a high temperature regeneration process during which the particles collected on the wall portion are burned by a heated gas.

The Office Action states that “[it] would have been obvious ... to modify the teachings of Ichikawa et al with the teachings of Ohno et al. such that said columnar body has a porosity which is in a range from 20 to 80 % and said plugs have a porosity which is 90% or less to provide a honeycomb filter having small pressure loss and superior mechanical strength” Applicant respectfully traverses as follows.

As discussed in the previous response, the Ichikawa et al. apparatus regenerates by a blow-back process in which the particles collected in the partition wall are removed by passing a blow-back air through the gas flow passages in the opposite direction.¹ In fact, Ichikawa et al. criticizes that an apparatus which removes the collected particles by burning by means of periodically igniting the filter is ineffective and problematic.² As an alternative to such an apparatus, Ichikawa et al. simply proposes that the second sealing members 22 plugging the gas flow passages at the downstream end have porosity which allows the blow-back air to easily pass through without increasing pressure loss, thereby releasing the deposited particles efficiently.³

On the contrary, Ohno et al. is directed to an apparatus which regenerates by burning the collected particles and states that by adjusting the thermal conductance of the seal layer adhering the porous ceramic bodies, the heat conductance between the ceramic bodies, *i.e.*, filters, can be improved, thereby burning the particles more effectively and efficiently.⁴ Also, according to Ohno et al., the porosity of its filters are set in order to improve the flow of exhaust gas and reduce the pressure loss caused by its use,⁵ and thus, the porosity of the second sealing members 22 described in Ichikawa et al. is believed to undesirably increase the pressure loss.

¹ See, for example, Ichikawa et al., Figures 1A and 1B.

² See, for example, *id.*, column 1, lines 23-50.

³ See Ichikawa et al., column 1, line 64, to column 2, line 3, and column 4, lines 33-54.

⁴ See, for example, Ohno et al., column 6, lines 12-26, column 9, lines 52-63.

⁵ See *id.*, column 2, lines 40-45, column 6, lines 1-4, and column 24, lines 50-54.

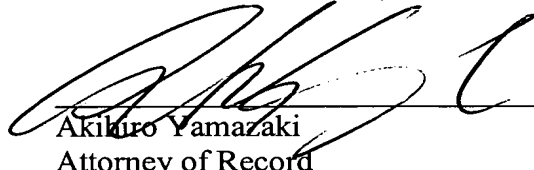
As such, Ichikawa et al. clearly teaches away from the apparatus described in Ohno et al., and the combination proposed in the Office Action lacks a proper motivation and is believed to be a product of hindsight guided by Applicant's disclosure. Therefore, it is respectfully submitted that the structure recited in Claim 1 is distinguishable from Ichikawa et al. and Ohno et al., and Applicant respectfully requests that the outstanding obviousness rejection based on the combination of Ichikawa et al. and Ohno et al. be withdrawn.

For the foregoing reasons, Claim 1 is believed to be allowable. Furthermore, since Claims 2-4 and 7 depend directly or indirectly from Claim 1, substantially the same arguments set forth above also apply to these dependent claims. Hence, Claims 2-4 and 7 are believed to be allowable as well.

In view of the discussions presented above, Applicant respectfully submits that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully submitted,

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